

## **Peer Review Plan: Proposed Revision to Nonpurposeful Take Regulations for Eagles**

### **About the Document**

**Title:** Eagle Permits; Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests

**Purpose:** The U.S. Fish and Wildlife Service is proposing revisions to the eagle nonpurposeful take permit regulations and eagle nest take regulations that were originally promulgated in 2009. Proposed revisions include the following: changes to permit issuance criteria and duration; definitions; compensatory mitigation standards; criteria for eagle nest removal permits; permit application requirements; and fees. The revisions are intended to add clarity to the eagle permit regulations, improve their implementation, and increase compliance, while providing strong protection for eagles.

### **About the Peer-review Process**

**Type of Review:** Influential

**Date of Peer Review:** 2011 – 2018; ongoing

**Estimated Dissemination Date for Final Rulemaking Document:** January 2017

**Estimated Date for Completion of Peer Review:** December 2018

**Process:** The Service is relying on 15 different scientific analyses and documents to support its decision with regard to revisions to eagle nonpurposeful take permits (see Table 1). The Service has viewed science products used in conjunction with eagle rulemaking to be influential in the context of Service, Department of Interior, and Office of Management and Budget data quality considerations since 2011. In that regard, Service scientists have adhered to a policy of diligently preparing scientific papers and publishing them in peer-reviewed journals as the preferred means of peer review of eagle science products, and several of the key science products have been published or peer-reviewed under the Service's contracts for such services. However, in February 2015 the Service proposed a schedule for finalization of the revision to these regulations with a shortened timeline. Service scientists observed at the time that such a timeline would preclude the opportunity for advance peer review of the remaining science products, and recommended adoption of a timeline that would allow for such review. However, given the importance and time-sensitivity of this rule, the Service concluded the best course of action was to finalize the rule according to the proposed schedule and then prioritize peer review of the remaining science products afterwards. Because the rule commits the Service to a regular schedule of updates to the parts of the regulation that tier from the science products, the Service concluded any revisions to the science based on the peer review process could be incorporated at the first scheduled update (or sooner if warranted). The purpose of this peer review plan is to clarify the peer-review status of the scientific information underlying the proposed revisions to the regulations, and to disclose the Service's plans for obtaining peer review of those elements

that have not been published. The status of completed peer reviews and the proposed schedule for peer review of remaining science products is given in Table 1.

### **About Public Participation**

The Service held five public scoping meetings in Sacramento, Minneapolis, Albuquerque, Denver, and Washington, DC, between July 22, 2014, and August 7, 2014 on the need for revisions to the eagle nonpurposeful take regulations. Representatives from the Service were available to answer participants' questions and listen to their ideas and concerns. Approximately 213 people attended the meetings, and all were encouraged to submit written comments. On May 6, 2016 the Service published the proposed rule and announced the availability of a draft Programmatic Environmental Impact Statement and a scientific status report on bald and golden eagles (the basis for this peer-review plan) in the Federal Register (81 FR 27933). The public comment period on the proposed rule and PEIS ended July 5, 2016.

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Table 1. Science products used to develop the proposed revision to the eagle nonpurposeful take permit and peer-review status and plan for each.

Product	How Used	Novel?	Peer Reviewed	Year	Details	Comments
Eagle Conservation Plan Guidance, Module 1, Land-based Wind Energy (ECPG)	Appendices C and D are to be incorporated by reference as approved methods for collecting pre-construction data and predicting eagle fatalities at wind facilities.	No.	Yes, one contracted review.	2011	The Wildlife Society (TWS), 2011, FWS contract	The ECPG has also gone through two rounds of public notice and comment, once in 2011 and once in 2016.
Golden eagle band return analysis	Estimate survival rates for potential take limit model, used in demographic model to predict future trends and to estimate demographic carrying capacity.	No.	No.	2017 - 2018	Service scientists plan to include these data and methods in a publication to be submitted to Ecological Applications.	A component of this analysis is to try and determine if satellite tags are causing mortality and biasing first-year survival estimates, or if they are more accurately reflecting true first-year survival rates.
Wind Project Eagle Fatality Prediction Model	Approved methods for collecting pre-construction data and predicting fatalities.	Yes.	Yes, twice. One contracted review in Region 6, one peer-reviewed publication.	2013 , 2015	R6 contract ( <a href="https://www.fws.gov/mountain-prairie/science/PeerReviewDocs/Comments_Response_Eagle%20Fatality_Model.pdf">https://www.fws.gov/mountain-prairie/science/PeerReviewDocs/Comments_Response_Eagle%20Fatality_Model.pdf</a> ), 2013. New, L., E. Bjerre, B. Millsap, M. C. Otto, and M. C. Runge. 2015. A Collision Risk Model to Predict Avian Fatalities at Wind Facilities: An Example Using Golden Eagles, <i>Aquila chrysaetos</i> . PLOS ONE 10:e0130978.	Contracted peer review was focused on 2 hypothetical examples (a small project and a 1,000 turbine project) but was focused on the applicability of the modeling approach given the objectives and the data

Bald and golden eagle natal dispersal distances	Establish size of local areas for local area population (LAP) calculations.	Yes.	Yes.	2014	Millsap, B. A., A. R. Harmata, D. W. Stahlecker, and D. G. Mikesic. 2014. Natal dispersal distance of bald and golden eagles originating in the coterminous United States as inferred from band encounters. <i>Journal of Raptor Research</i> 48:13–23.	This is also linked to the contracted ECPG review by TWS since that included a review of the conceptual idea of defining the LAP based on natal dispersal distances.
Golden eagle population size and trend estimates	To estimate population size and trend. Also used to determine mean density for local area population calculations.	Yes.	Yes, three times, all publications.	2013	Good, R. E., R. M. Nielson, H. Sawyer, and L. L. McDonald. 2007. A Population Estimate for Golden Eagles in the Western United States. <i>Journal of Wildlife Management</i> 71:395–402. Nielson, R. M., L. Mcmanus, T. Rintz, L. L. McDonald, R. K. Murphy, W. H. Howe, and R. E. Good. 2014. Monitoring abundance of golden eagles in the western United States. <i>The Journal of Wildlife Management</i> 78:721–730. Millsap, B. A., G. S. Zimmerman, J. R. Sauer, R. M. Nielson, M. Otto, E. Bjerre, and R. Murphy. 2013. Golden Eagle population trends in the western United States: 1968-2010. <i>The Journal of Wildlife Management</i> 77:1436–1448.	
Bald eagle band return analysis	Estimate survival rates for potential take limit model, extrapolation to estimate total population size, used in demographic model to predict future trends and to estimate demographic carrying capacity.	No.	No.	2017 - 2018	Service scientists plan to include these data and methods in a monograph-size publication to be submitted to a peer-reviewed journal.	

Bald eagle productivity meta-analysis	Estimate fecundity rates for potential take limit model, extrapolation to estimate total population size, used in demographic model to predict future trends and to estimate demographic carrying capacity.	No.	No.	2017 - 2018	Service scientists plan to include these data and methods in a monograph-size publication to be submitted to a peer-reviewed journal.	Common approach to meta-analyses (Higgins, J. P. T., S. G. Thompson, and D. J. Spiegelhalter. 2009. A re-evaluation of random-effects meta-analysis. <i>Journal of the Royal Statistical Society</i> 172:137–159) with added complexity specific to this analysis.
Bald eagle demographic model	Use to extrapolate conservative estimates of population size from estimates of the number of occupied nesting territories; used to project future population trends; used to estimate carrying capacity.	No.	No.	2017 - 2018	Service scientists plan to include these data and methods in one monograph-size publication or two or three smaller publications to be submitted to a peer-reviewed journal.	Use of demographic models for this purpose is customary, and the model we used is conventional and typical of many such studies.
Bald eagle potential take limit model	Used to estimate sustainable take rates.	No.	No.	2017 - 2018	Service scientists plan to include these data and methods in one monograph-size publication or two or three smaller publications to be submitted to a peer-reviewed journal.	The approach used is consistent with contemporary recommended peer-reviewed approaches for take limit estimation (e.g., Runge, M. C., J. R. Sauer, M. L. Avery, B. F. Blackwell, and M. D. Koneff. 2009. Assessing allowable take of migratory birds. <i>Journal of Wildlife Management</i> 73:556–565.)

Bald eagle dual-frame nesting population estimates	Used to estimate the number of occupied bald eagle nesting territories in the coterminous U.S.; used in demographic model to estimate population size	No.	No.	2017 - 2018	Service scientists plan to include these data and methods in one monograph-size publication or two or three smaller publications to be submitted to a peer-reviewed journal.	The approach used builds off of a bald eagle survey design that has been published in a peer-reviewed journal (Haines, D. E., and K. H. Pollock. 1998. Estimating the number of active and successful bald eagle nests: an application of the dual frame method. <i>Environmental and Ecological Statistics</i> 5:245–256.)
Golden eagle productivity meta-analysis	Estimate fecundity rates for potential take limit model, used in demographic model to predict future trends and to estimate demographic carrying capacity.	No.	No.	2017 - 2018	Service scientists plan to include these data and methods in a publication to be submitted to <i>Ecological Applications</i> .	Common approach to meta-analyses (Higgins, J. P. T., S. G. Thompson, and D. J. Spiegelhalter. 2009. A re-evaluation of random-effects meta-analysis. <i>Journal of the Royal Statistical Society</i> 172:137–159) with added complexity specific to this analysis.
Golden eagle demographic model	Use to project future population trends; used to estimate carrying capacity for potential take limit model.	No.	No.	2017 - 2018	Service scientists plan to include these data and methods in a publication to be submitted to <i>Ecological Applications</i> .	Use of demographic models for this purpose is customary, and the model we used is conventional and typical of many such studies.
Golden eagle potential take limit model	Used to estimate sustainable take rates.	No.	No.	2017 - 2018	Service scientists plan to include these data and methods in a publication to be submitted to <i>Ecological Applications</i> .	The approach used is consistent with contemporary recommended peer-reviewed approaches for take limit estimation (e.g., Runge, M. C., J. R. Sauer, M. L. Avery, B. F. Blackwell, and M. D. Koneff. 2009. Assessing allowable take of migratory birds. <i>Journal of Wildlife Management</i> 73:556–565.)

Golden eagle cause-of-death analysis	Used to estimate current take rates, key component of the determination that current take may be unsustainable.	Yes.	No.	2017 - 2018	Service scientists plan to include these data and methods in a publication to be submitted to Ecological Applications.	The approach is consistent with peer-reviewed literature (eg., Kenward, R. E., V. Marcström, and M. Karlbom. 1993. Causes of death in radio-tagged northern goshawks. Pages 57–61 in. Raptor Biomedicine. Volume Chapter 13. University of Minnesota Press, Minneapolis, Minnesota.)
Bald and golden eagle movement analysis	Used to evaluate EMU options	No.	No.	2017 - 2018	The Western golden Eagle Team is preparing a manuscript for submission to the Journal of Raptor Research.	